Louisiana Department of Environmental Quality
Office of Environmental Services

STATEMENT OF BASIS
For
Activity Number: PER20070002
Permit No. 2889-V1

Norco Chemical Plant – West Site
Agency Interest No. 4384
Shell Chemical LP
Norco, St. Charles Parish, Louisiana

I. APPLICANT

Company

Shell Chemical LP
Post Office Box 10
Norco, Louisiana 70079

Facility

Norco Chemical Plant – West Site
16122 River Road, Norco, St. Charles Parish, Louisiana
UTM Coordinates: 748.59 kilometers East and 3322.04 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

Wastewater from the Norco Chemical Plant – West Site, Shell Norco Chemical Plant – East Site, Motiva Refinery, and other collocated companies are collected and introduced at various locations in the Effluent Biotreater System. The wastewaters are treated for solids removal, pH adjustment, clarification, and equalization before being sent to the aggressive biological treatment units, and then to final clarification (settling and filtering) prior to discharge to the Mississippi River. Recovered solids and wasted biomass are dewatered and sent to the biosolids incinerator for waste reduction.

The incinerator system consists of a multiple hearth incinerator, afterburner, ejector scrubber, induced draft fan, and stack. The 80.89 MM BTU/hr (vertical 8 hearth) natural gas fired combustor has approximately 2500 square feet of hearth area. Solids from the effluent biotreater system filters are conveyed by a Moyno pump to the incinerator feed chute. The feed chute deposits the solids on the periphery of the first (top) hearth where rabble arms with blades move the solids across the first hearth in a spiral path to the center where they fall through an opening to the second hearth. The rabble arm on the second hearth moves the solids outward to the periphery where they fall to the third hearth. Each hearth has a forced air natural gas fire burner that is controlled by hearth temperature.

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The solids (ash) exit the eighth (bottom) hearth at approximately 900^{O}F and are conveyed to storage and then sold as a product. The incinerator rabble arm shaft is air cooled by a 3800 scfm forced air blower. The shaft air is either vented to the atmosphere or returned to the incinerator between hearths 1&2, 2&3, 3&4, 5&6, or 7&8 for oxygen control.

Flue gases exit the incinerator at approximately 900^{O}F and enter the afterburner chamber where a gas burner increases the temperature to 1500 ^{O}F for over two seconds to ensure VOC destruction. Excess oxygen is maintained to minimize particulate and carbon monoxide formation during combustion. The flue gases from the afterburner are cooled in a precooler (using clarified water) before entering the ejector scrubber for particulate and acids removal.

The T-Unit also includes a stripper which is used to remove ethylene dichloride and other contaminants from the recovered ground water. The stripped groundwater is pumped to the final effluent sump and then discharged to the river. Off-gas from the stripper is routed offsite for incineration.

The Norco Chemical Plant – West Site currently operates under Permit 2889-V0, dated August 31, 2004, and Permit 2831-V0, dated March 21, 2003.

III. PROPOSED PERMIT / PROJECT INFORMATION

Proposed Permit

A permit application and Emission Inventory Questionnaire (EIQ) dated April 12, 2007 as well as additional information dated August 10, 2007 and August 13, 2007 were submitted requesting a Part 70 operating permit renewal/modification.

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, and in the local newspaper. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List. The application and proposed permit were submitted to the St. Charles Parish Library. The proposed permit was submitted to US EPA Region 6. All comments will be considered prior to the final permit decision.

Project description

Shell Chemical requests a Part 70 operating permit renewal / modification for the Norco Chemical Plant – West Site to include fugitive emissions from storage spheres and West Site Shipping (loading facilities for ships and barges) into this permit. Currently these operations, along with the M Unit, are covered by Permit 2831-V0. The M Unit was dismantled and Permit 2831-V0 will be rescinded. Emissions from the spheres and the West Site loading activities are controlled by offsite flares.

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Permitted Air Emissions

Permitted emissions in tons per year are as follows:

Pollutant	Permitted	Proposed	Change
PM_{10}	23.45	21.65	- 1.80
SO_2	9.95	10.23	+ 0.28
NO_X	41.79	41.79	-
CO	32.74	33.69	+ 0.95
VOC, total	169.73	164.44	- 5.29

Prevention of Significant Deterioration (PSD) Applicability

Emissions of the criteria pollutants from the project will not increase more than their PSD significance levels. Therefore, PSD analysis was not required.

Maximum Achievable Control Technology (MACT) requirements

Toxic air pollutant (TAP) emissions from the Biosolids Incinerator will be controlled by the afterburner, eductor scrubber, wet electrostatic precipitator (WESP), and a packed scrubber. Tank T-T251 is equipped with an internal floating roof while Tanks T-6260 and T-T206 are equipped with fixed roofs. These are determined as MACT.

Air Modeling Analysis

Emissions from the T-Unit are not expected to cause or to contribute to any National Ambient Air Quality Standards (NAAQS) or Ambient Air Standards (AAS) exceedances.

Dispersion Model Used: ISC3

Pollutant	Averaging Period	Calculated Maximum Ground Level Concentration ($\mu g/m^3$)	Louisiana Air Quality Standard ($\mu g/m^3$)
Hydrochloric Acid	8-Hour	54.21	180
Chlorinated Dibenzo-P-Dioxins	Annual	(screen) < 0.000004	0.003
Chlorinated Dibenzofurans	Annual	(screen) < 0.000004	0.003
Hydrazine	Annual	0.007	0.02
1,3-Butadiene	Annual	0.61	0.92

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General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the proposed Part 70 permit.

Applicable Requirements

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

IV. PERMIT SHIELDS

The Permit does not include any Permit Shields

V. PERIODIC MONITORING

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VI. APLICABILITY AND EXEMPTIONS OF SELECTED SUBJECT ITEMS

The explanations for the non-applicability and exemptions of selected subject items are listed in Table XI of the proposed permit.

VII. STREAMLINED REQUIREMENTS

The Permit does not include any streamlined requirements.

VIII. GLOSSARY

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other

costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

CAM - Compliance Assurance Monitoring rule – A federal air regulation under 40 CFR Part 64

Carbon Black - A black colloidal substance consisting wholly or principally of amorphous carbon and used to make pigments and ink.

Carbon Monoxide (CO) – (Carbon monoxide) a colorless, odorless gas produced by incomplete combustion of any carbonaceous (gasoline, natural gas, coal, oil, etc.) material.

Cooling Tower – A cooling system used in industry to cool hot water (by partial evaporation) before reusing it as a coolant.

Continuous Emission Monitoring System (CEMS) – The total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent.

Cyclone – A control device that uses centrifugal force to separate particulate matter from the carrier gas stream.

Duct Burner – A device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Federally Enforceable Specific Condition - A federally enforceable specific condition written to limit the potential to Emit (PTE) of a source that is permanent, quantifiable, and practically enforceable. In order to meet these requirements, the draft permit containing the federally enforceable specific condition must be placed on public notice and include the following conditions:

- A clear statement of the operational limitation or condition which limits the source's potential to emit;
- Recordkeeping requirements related to the operational limitation or condition;
- A requirement that these records be made available for inspection by LDEQ personnel;
- A requirement to report for the previous calendar year.

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Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Heat Recovery Steam Generator (HRSG) – A steam generator that recovers exhaust heat from a gas turbine, and provides economizing and steam generation surfaces.

Hydrogen Sulfide (H_2S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

NESHAP - National Emission Standards for Hazardous Air Pollutants –Air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

NSPS - New Source Performance Standards – Air emission standards for specific types of facilities, as outlined in 40 CFR Part 60

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants

(unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.